L Number	Hits	Search Text	DB	Time stamp
1	107	((("data fragment" or "data fragments") or fragment$2) and 707/$.ccls. and @ad<20010405) and pointer$2 and overlap$5	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:20
2	1	((("data fragment" or "data fragments") or fragment$2) same "minimal portion" and 707/$.ccls. and @ad<20010405)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:37
3	10	("5687254" | "5781772" | "5953727" | "5972693" | "6023683" | "6026409" | "6185560" | "6189013" | "6278993" | "6363399").PN.	USPAT	2003/12/01 12:14
4	14	((("data fragment" or "data fragments") or fragment$2) same ((minimal or small$5 or least) adj2 portion) and 707/$.ccls. and @ad<20010405)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 12:17
5	8	search$ same match near10 (("data fragment" or "data fragments") or fragment$3) same (portion or "minimal portion" or "least portion" or (small$5 adj2 portion)) and @ad<20010405	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 12:45
6	178	search$ same (portion or "minimal portion" or "least portion" or (small$5 adj2 portion)) and ((("data fragment" or "data fragments") or fragment$2) and 707/$.ccls. and @ad<20010405)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 12:54
7	0	search$ same (portion or "minimal portion" or "least portion" or (small$5 adj2 portion)) same ((("data fragment" or "data fragments") or fragment$2) and 707/$.ccls. and @ad<20010405)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 12:48
8	27	search$ same ("minimal portion" or "least portion" or (small$5 adj2 portion)) and ((("data fragment" or "data fragments") or fragment$2) and 707/$.ccls. and @ad<20010405)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 12:56
9	2	((("data fragment" or "data fragments") or fragment$2) adj10 "minimal portion" and @ad<20010405)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 13:14
10	480236	data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1) and @ad<20010405	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:09
11	6387	(data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1) and @ad<20010405) and match$4 and (ser$3 or sequence$3) and ((search$4 and quer$5) and (data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1)))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:11
13	68178	707/(1-10).ccls. or 707/(100-104.1).ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:15
14	2309	((data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1) and @ad<20010405) and match$4 and (ser$3 or sequence$3) and ((search$4 and quer$5) and (data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1)))) and (707/(1-10).ccls. or 707/(100-104.1).ccls.)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:16
15	95	(((data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1) and @ad<20010405) and match$4 and (ser$3 or sequence$3) and ((search$4 and quer$5) and (data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1)))) and (707/(1-10).ccls. or 707/(100-104.1).ccls.)) and non$overlap$5	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:16

16	6	((((data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1) and @ad<20010405) and match$4 and (ser$3 or sequence$3) and ((search$4 and quer$5) and (data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1)))) and (707/(1-10).ccls. or 707/(100-104.1).ccls.)) and non$overlap$5) and (((("data fragment" or "data fragments") or fragment$2) and 707/$.ccls. and @ad<20010405) and pointer$2 and overlap$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:37
17	3	((((data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1) and @ad<20010405) and match$4 and (ser$3 or sequence$3) and ((search$4 and quer$5) and (data with (fragment$1 or piece$1 or portion$1 or section$1 or part$1)))) and (707/(1-10).ccls. or 707/(100-104.1).ccls.)) and non$overlap$5) and ("minimal portion" or "minimal sequence" or "minimal portions" or "minimal sequences")	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/01 15:38

Terms used
minimal and **portion** and **match** and **data** and **fragment**

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1 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research**

Full text available: pdf(4.21 MB) Additional Information: full citation, abstract, references, index terms

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

2 Archiving, digital collections, and analysis: Assembling virtual pots from 3D measurements of their fragments

David B. Cooper, Andrew Willis, Stuart Andrews, Jill Baker, Yan Cao, Dongjin Han, Kongbin Kang, Weixin Kong, Frederic F. Leymarie, Xavier Orriols, Senem Velipasalar, Eileen L. Vote, Martha S. Joukowsky, Benjamin B. Kimia, David H. Laidlaw, David Mumford

November 2001 **Proceedings of the 2001 conference on Virtual reality, archeology, and cultural heritage**

Full text available: pdf(661.68 KB) Additional Information: full citation, abstract, references, citings

A heretofore unsolved problem of great archaeological importance is the automatic assembly of pots made on a wheel from the hundreds (or thousands) of sherds found at an excavation site. An approach is presented to the automatic estimation of mathematical models of such pots from 3D measurements of sherds. The overall approach is formulated and described and some detail is provided on the elements of the procedure. The end result is a representation suitable for comparisons, geometric feature ex ...

Keywords: digital archiving, geometric learning, laser scan data analysis, object modeling and restoration, perceptual grouping, virtual pots from sherds

3 Automatic data and computation decomposition on distributed memory parallel computers

Peizong Lee, Zvi Meir Kedem

January 2002 **ACM Transactions on Programming Languages and Systems (TOPLAS),**

Volume 24 Issue 1
Full text available: pdf(1.15 MB) Additional Information: full citation, abstract, references, index terms

To exploit parallelism on shared memory parallel computers (SMPCs), it is natural to focus on decomposing the computation (mainly by distributing the iterations of the nested Do-Loops). In contrast, on distributed memory parallel computers (DMPCs), the decomposition of computation and the distribution of data must both be handled---in order to balance the computation load and to minimize the migration of data. We propose and validate experimentally a method for handling computations and data syn ...

Keywords: Computation decomposition, data alignment, data distribution, distributed-memory computers, dominant data array, iteration space mapping vector, parallelizing compilers, spatial dependence vector, temporal dependence vector, tiling techniques

4 BPF+: exploiting global data-flow optimization in a generalized packet filter architecture
Andrew Begel, Steven McCanne, Susan L. Graham
August 1999 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Applications, technologies, architectures, and protocols for computer communication**, Volume 29 Issue 4
Full text available: pdf(1.55 MB) Additional Information: full citation, abstract, references, citings, index terms

A *packet filter* is a programmable selection criterion for classifying or selecting packets from a packet stream in a generic, reusable fashion. Previous work on packet filters falls roughly into two categories, namely those efforts that investigate flexible and extensible filter abstractions but sacrifice performance, and those that focus on low-level, optimized filtering representations but sacrifice flexibility. Applications like network monitoring and intrusion detection, however, requ ...

5 Data-Driven and Demand-Driven Computer Architecture
Philip C. Treleaven, David R. Brownbridge, Richard P. Hopkins
January 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 1
Full text available: pdf(4.14 MB) Additional Information: full citation, references, citings, index terms

6 A real-time procedural shading system for programmable graphics hardware
Kekoa Proudfoot, William R. Mark, Svetoslav Tzvetkov, Pat Hanrahan
August 2001 **Proceedings of the 28th annual conference on Computer graphics and interactive techniques**
Full text available: pdf(1.20 MB) Additional Information: full citation, abstract, references, citings, index terms, review

Real-time graphics hardware is becoming programmable, but this programmable hardware is complex and difficult to use given current APIs. Higher-level abstractions would both increase programmer productivity and make programs more portable. However, it is challenging to raise the abstraction level while still providing high performance. We have developed a real-time procedural shading language system designed to achieve this goal.

Our system is organized around multiple *computation ...*

***Keywords**: graphics hardware, graphics systems, rendering, shading languages*

7 Supporting the restructuring of data abstractions through manipulation of a program visualization

Robert W. Bowdidge, William G. Griswold
April 1998 **ACM Transactions on Software Engineering and Methodology (TOSEM)**, Volume 7 Issue 2

Full text available: pdf(1.57 MB) Additional Information: full citation, abstract, references, citings, index terms

With a meaning-preserving restructuring tool, a software engineer can change a program's structure to ease future modifications. However, deciding how to restructure the program requires a global understanding of the program's structure, which cannot be derived easily by directly inspecting the source code. We describe a manipulable program visualization—the star diagram—that supports the restructuring task of encapsulating a global data structure. The star diag ...

Keywords: meaning-preserving restructuring, semi-automated restructuring, software visualization, star diagram, tool-supported restructuring

8 Evaluating multi-port frame buffer designs for a mesh-connected multicomputer
Gordon Stoll, Bin Wei, Douglas Clark, Edward W. Felten, Kai Li, Patrick Hanrahan
May 1995 **ACM SIGARCH Computer Architecture News , Proceedings of the 22nd annual international symposium on Computer architecture**, Volume 23 Issue 2

Full text available: pdf(999.17 KB) Additional Information: full citation, abstract, references, citings, index terms

Multicomputers can be effectively used for interactive graphics rendering only if there are mechanisms available to rapidly composite and transfer images to an external display device. One method for achieving the necessary bandwidth for this operation is to provide multiple high-bandwidth ports into a frame buffer. In this paper, we evaluate the design space of a multiport frame buffer design for the Intel Paragon mesh routing network. We use an instrumented rendering system to capture the grap ...

9 The VMP network adapter board (NAB): high-performance network communication for multiprocessors
H. Kanakia, D. Cheriton
August 1988 **ACM SIGCOMM Computer Communication Review , Symposium proceedings on Communications architectures and protocols**, Volume 18 Issue 4

Full text available: pdf(1.63 MB) Additional Information: full citation, abstract, references, citings, index terms

High performance computer communication between multiprocessor nodes requires significant improvements over conventional host-to-network adapters. Current host-to-network adapter interfaces impose excessive processing, system bus and interrupt overhead on a multiprocessor host. Current network adapters are either limited in function, wasting key host resources such as the system bus and the processors, or else intelligent but too slow, because of complex transport protocols and because of a ...

10 Fine grained data management to achieve evolution resilience in a software development environment
Richard Snodgrass, Karen Shannon
October 1990 **ACM SIGSOFT Software Engineering Notes , Proceedings of the fourth ACM SIGSOFT symposium on Software development environments**, Volume 15 Issue 6

Full text available: pdf(1.72 MB) Additional Information: full citation, abstract, references, index terms

A software development environment (SDE) exhibits evolution resilience if changes to the SDE do not adversely affect its functionality nor performance, and also do not introduce delays in returning the SDE to an operational state after a change. Evolution resilience is

especially difficult to achieve when manipulating fine grained data, which must be tightly bound to the language in which the SDE is implemented to achieve adequate performance. We examine a spectrum of approaches to tool int ...

11 Research sessions: data mining: Mining long sequential patterns in a noisy environment

Jiong Yang, Wei Wang, Philip S. Yu, Jiawei Han

June 2002 **Proceedings of the 2002 ACM SIGMOD international conference on Management of data**

Full text available: pdf(1.47 MB) Additional Information: full citation, abstract, references, citings, index terms

Pattern discovery in long sequences is of great importance in many applications including computational biology study, consumer behavior analysis, system performance analysis, etc. In a noisy environment, an observed sequence may not accurately reflect the underlying behavior. For example, in a protein sequence, the amino acid N is likely to mutate to D with little impact to the biological function of the protein. It would be desirable if the occurrence of D in the observation can be related to ...

12 Clustering intrusion detection alarms to support root cause analysis

Klaus Julisch

November 2003 **ACM Transactions on Information and System Security (TISSEC)**, Volume 6 Issue 4

Full text available: pdf(265.72 KB) Additional Information: full citation, abstract, references, index terms

It is a well-known problem that intrusion detection systems overload their human operators by triggering thousands of alarms per day. This paper presents a new approach for handling intrusion detection alarms more efficiently. Central to this approach is the notion that each alarm occurs for a reason, which is referred to as the alarm's *root causes*. This paper observes that a few dozens of rather persistent root causes generally account for over 90% of the alarms that an intrusion ...

Keywords: Intrusion detection, cluster analysis, data mining, false positives, root cause analysis

13 Research sessions: XML II: Holistic twig joins: optimal XML pattern matching

Nicolas Bruno, Nick Koudas, Divesh Srivastava

June 2002 **Proceedings of the 2002 ACM SIGMOD international conference on Management of data**

Full text available: pdf(1.34 MB) Additional Information: full citation, abstract, references, citings, index terms

XML employs a tree-structured data model, and, naturally, XML queries specify patterns of selection predicates on multiple elements related by a tree structure. Finding all occurrences of such a twig pattern in an XML database is a core operation for XML query processing. Prior work has typically decomposed the twig pattern into binary structural (parent-child and ancestor-descendant) relationships, and twig matching is achieved by: (i) using structural join algorithms to match the binary relati ...

14 A pattern matching algorithm for verification and analysis of very large IC layouts

Mariusz Niewczas, Wojciech Maly, Andrzej Strojwas

April 1998 **Proceedings of the 1998 international symposium on Physical design**

Full text available: pdf(922.02 KB) Additional Information: full citation, abstract, references, citings, index terms

We propose a simple, isometry invariant pattern matching algorithm for an effective data

reduction useful in layout-related data processing of very complex IC designs. The repeatable geometrical features and attributes are stored in a pattern database. Original pattern instance, or its geometrical attributes, may be quickly regenerated based both on the information stored within the pattern and position of the pattern instance. We also show preliminary results of analysis of the state-of-th ...

15 Voronoi diagrams—a survey of a fundamental geometric data structure
Franz Aurenhammer
September 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 3
Full text available: pdf(5.16 MB) Additional Information: full citation, references, citings, index terms

Keywords: cell complex, clustering, combinatorial complexity, convex hull, crystal structure, divide-and-conquer, geometric data structure, growth model, higher dimensional embedding, hyperplane arrangement, k-set, motion planning, neighbor searching, object modeling, plane-sweep, proximity, randomized insertion, spanning tree, triangulation

16 Building a robust software-based router using network processors
Tammo Spalink, Scott Karlin, Larry Peterson, Yitzchak Gottlieb
October 2001 **ACM SIGOPS Operating Systems Review , Proceedings of the eighteenth ACM symposium on Operating systems principles**, Volume 35 Issue 5
Full text available: pdf(1.49 MB) Additional Information: full citation, abstract, references, citings, index terms

Recent efforts to add new services to the Internet have increased interest in software-based routers that are easy to extend and evolve. This paper describes our experiences using emerging network processors---in particular, the Intel IXP1200---to implement a router. We show it is possible to combine an IXP1200 development board and a PC to build an inexpensive router that forwards minimum-sized packets at a rate of 3.47Mpps. This is nearly an order of magnitude faster than existing pure PC-base ...

17 Data integration using similarity joins and a word-based information representation language
William W. Cohen
July 2000 **ACM Transactions on Information Systems (TOIS)**, Volume 18 Issue 3
Full text available: pdf(312.80 KB) Additional Information: full citation, abstract, references, citings, index terms, review

The integration of distributed, heterogeneous databases, such as those available on the World Wide Web, poses many problems. Herer we consider the problem of integrating data from sources that lack common object identifiers. A solution to this problem is proposed for databases that contain informal, natural-language "names" for objects; most Web-based databases satisfy this requirement, since they usually present their information to the end-user through a veneer of text. We des ...

18 A framework for constructing features and models for intrusion detection systems
Wenke Lee, Salvatore J. Stolfo
November 2000 **ACM Transactions on Information and System Security (TISSEC)**, Volume 3 Issue 4
Full text available: pdf(187.03 KB) Additional Information: full citation, abstract, references, citings, index terms, review

Intrusion detection (ID) is an important component of infrastructure protection mechanisms. Intrusion detection systems (IDSs) need to be accurate, adaptive, and extensible. Given these requirements and the complexities of today's network environments, we need a more

systematic and automated IDS development process rather that the pure knowledge encoding and engineering approaches. This article describes a novel framework, MADAM ID, for Mining Audit Data for Automated Models for Instrusion ...

Keywords: data mining, feature construction, intrusion detection

19 Cg: a system for programming graphics hardware in a C-like language

William R. Mark, R. Steven Glanville, Kurt Akeley, Mark J. Kilgard

July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available: pdf(2.57 MB) Additional Information: full citation, abstract, references, index terms

The latest real-time graphics architectures include programmable floating-point vertex and fragment processors, with support for data-dependent control flow in the vertex processor. We present a programming language and a supporting system that are designed for programming these stream processors. The language follows the philosophy of C, in that it is a hardware-oriented, general-purpose language, rather than an application-specific shading language. The language includes a variety of facilitie ...

20 Embedded video in hypermedia documents: supporting integration and adaptive control

Dick C. A. Bulterman

October 1995 **ACM Transactions on Information Systems (TOIS)**, Volume 13 Issue 4

Full text available: pdf(2.41 MB) Additional Information: full citation, abstract, references, citings, index terms

As the availability of digital video becomes commonplace, a shift in application focus will occur from merely accessing video as an independent data stream to embedding video with other multimedia data types into coordinated hypermedia presentations. The migration to embedded video will present new demands on application and support environments: processing of any one piece of video data will depend on how that data relates to other data streams active with ...

Keywords: adaptive control, embedded video, hypermedia documents, multimedia, synchronization, video presentation